

Claims:

1. The use of layered double hydroxide salts as charge control agents in electrophotographic toners and developers, in powder coating materials, electret materials and in electrostatic separation processes of chargeable materials, wherein the double hydroxide salt contains monovalent and/or divalent and also trivalent metal cations, and also contains one or more organic anions A of the formula (I)



in which

X is hydroxyl, carboxyl, sulfato or sulfo;

Y is carboxyl, sulfate or sulfo, and

R is an aliphatic, cycloaliphatic, heterocycloaliphatic, olefinic, cycloolefinic, heterocycloolefinic, aromatic, heteroaromatic, araliphatic or heteroaraliphatic radical having a total of at least 8 carbon atoms, which may be substituted by one or more substituents from the group hydroxyl, amino, halogen, C₁-C₂₂-alkyl, C₁-C₂₂-alkoxy, -C₁-C₂₂-alkylene-(CO)-O-(CH₂CH₂O)₀₋₅₀-alkyl, -C₁-C₂₂-alkylene-(CO)-O-(CH₂CH₂O)₀₋₅₀-haloalkyl, carboxyl, sulfo, nitro and cyano.

2. The use as claimed in claim 1, wherein the number of hydroxyl groups in the double hydroxide salt is from 1.8 to 2.2 times the sum of all the metal cations.

3. The use as claimed in claim 1 or 2, wherein monovalent metal cations present are those from the group Li⁺, Na⁺ and K⁺, divalent metal cations present are those from the group Mg²⁺, Ca²⁺, Zn²⁺, Co²⁺, Ni²⁺, Fe²⁺, Cu²⁺ and Mn²⁺, and trivalent metal cations present are those from the group Al³⁺, Fe³⁺, Co³⁺, Mn³⁺, Ni³⁺, Cr³⁺ and B³⁺.

4. The use as claimed in one or more of claims 1 to 3, wherein the double hydroxide salts contain Mg²⁺ and Al³⁺.

5. The use as claimed in claim 4, wherein the molar ratio $Mg^{2+} : Al^{3+}$ is from 3.1:1 to 1:2.

6. The use as claimed in one or more of claims 1 to 5, wherein the organic anion A is an anion from the group consisting of benzoic acid, naphthalenedisulfonic acids, naphthalenedicarboxylic acids, hydroxynaphthoic acids, octanedicarboxylic acid, decanedicarboxylic acid, dodecanedicarboxylic acid, tetradecanedicarboxylic acid, hexadecanedicarboxylic acid, octadecanedicarboxylic acid, naphthalenetetracarboxylic acid, sulfosuccinic acid (C₆-C₂₀)-alkyl monoesters and sulfosuccinic acid (C₆-C₂₂)-fluoroalkyl monoesters.

7. The use as claimed in at least one of claims 1 to 6, wherein some of the organic anions A are replaced by other organic anions A', A' corresponding to the formula H-R-Y and both R and Y having the definition described in formula (1).

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8. The use as claimed in claim 7, wherein A' is an anion of a C₁₂-C₄₄ fatty acid, especially stearic acid.

9. The use as claimed in at least one of claims 1 to 6, wherein the double hydroxide salt is a calcined hydrotalcite.

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10. The use as claimed in at least one of claims 1 to 7 in combination with one or more further charge control agents from the group of triphenylmethanes; ammonium and immonium compounds, iminium compounds; fluorinated ammonium and fluorinated immonium compounds; biscationic acid amides; polymeric ammonium compounds; diallylammonium compounds; aryl sulfide derivatives, phenol derivatives; phosphonium compounds and fluorinated phosphonium compounds; calix[n]arenes, cyclically linked oligosaccharides (cyclodextrins), interpolyelectrolyte complexes (IPECs); polyester salts; metal complex compounds, salts of ionic structured silicates, hydroxycarboxylic acid-metal complexes and hydroxycarboxylic acid-nonmetal complexes, benzimidazolones; azines, thiazines or oxazines, which are listed in the Colour Index as Pigments, Solvent Dyes, Basic Dyes or Acid Dyes.

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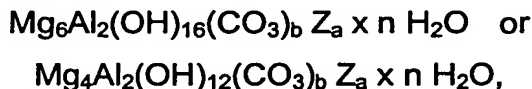
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11. The use as claimed in at least one of claims 1 to 8 in a concentration of from 0.01% to 50% by weight, based on the total weight of the toner, developer, coating material, powdercoating material, electret material or materials for electrostatic separation.

12. An electrophotographic toner, powder or powdercoating material, containing from 30% to 99.99% by weight of a binder, from 0.01% to 50% by weight of at least one layered double hydroxide salt as set forth in claims 1 to 9, and, if desired, from 0.001% to 50% by weight of a colorant, based in each case on the total weight of the electrophotographic toner, powder or powdercoating material.

13. A magnesium-aluminum hydroxide carbonate having an Mg to Al ratio of from 1.9:1 to 3.1:1, containing anions in the following proportions, based in each case on the total weight of the Mg-Al hydroxide carbonate:
more than zero and less than 10% by weight of sebacic acid, or from 0.5 to 70% by weight of a combination of sebacic acid and a C₁₂-C₄₄ fatty acid or of a partly fluorinated or perfluorinated sulfosuccinic acid (C₆-C₂₂)alkyl monoester, or from 0.5% to 70% by weight of a partly fluorinated or perfluorinated sulfosuccinic acid (C₆-C₂₂)alkyl monoester.

14. A magnesium-aluminum hydroxide carbonate as claimed in claim 13, characterized by one of the formulae



where b is zero to 1, n is zero to 10, Z is a combination of anions of sebacic acid and anions of one or more C₁₂-C₄₄ fatty acids, especially stearic acid, and the number a is such that Z accounts for from 0.5% to 50% by weight, preferably from 1% to 45% by weight, based on the total weight of the compound.